

**ADDENDUM**  
**to**  
**ENVIRONMENTAL IMPACT ASSESSMENT**  
**CARIBBEAN CEMENT COMPANY**  
**EXPANSION PROJECT**



Submitted to:

**CARIBBEAN CEMENT COMPANY LIMITED**  
Rock Fort  
St. Andrew  
Jamaica



Prepared by

**ENVIRONMENTAL SOLUTIONS LTD.**  
20 West Kings House Road  
Kingston 10  
Jamaica



**DECEMBER 2005**

## **1.0 INTRODUCTION**

This proposed Caribbean Cement Company Limited (CCCL) modernization and expansion programme involves the upgrade of the cement production process to generate more cement to meet the need of the Jamaican market. The largest component of the project is the clinker production process expansion. Another key project component is the enhancement of Cement Mill #4 to include a High Pressure Grinding Roll (HPGR) system.

The environmental impacts associated with the Cement Mill expansion (except those related to air quality) are covered in Section 5.0 of the main report. The air quality impacts associated with the expansion were not included in the discussion on air quality in the Air Dispersion Modeling Report (dated August 2, 2005).

This document addresses the predicted impacts associated with the enhancements of Cement Mill #4.

## **2.0 BACKGROUND**

The Cement Mill #4 enhancements include a High Pressure Grinding Roll (HPGR) system that comprises a roller press, a VSK vertical separator, a programmed control system, an induced draft fan, a dust collector, a feed elevator, a bucket elevator and a hot gas generator. With the addition of these new pieces of equipment, the separator vent at cement mill #4 will be discontinued. Consequently, predicted air quality conditions will have to be re-assessed. This assessment involves computing new air dispersion model runs to predict the new air quality impacts associated with the entire expansion and modernisation project.

### 3.0 APPROACH

Air emission rates from vents associated with the HPGR system were calculated and the cumulative emission rates from the CCCL facility were compared with air emission standards. Building downwash for the new HPGR enhancements were also computed, the results of which were included as part of the model exercises to determine the impact of the combined sources on ambient air quality.

### 4.0 FINDINGS

The inclusion of the HPGR enhancements will only result in an increase in particulate matter (PM) emissions, with all other emissions computed in the base EIA report remaining unchanged. Hence, the model effort will only focus on PM emissions and its impact on ambient air quality.

#### 4.1 Emission Rates

The HPGR enhancements will see the generation of an additional 1.019 g/s of PM emissions from the three additional sources (see Table 1). It should also be pointed out that 0.4861 g/s of PM emissions from the cement mill #4 separator vent will no longer be generated, resulting in an overall increase of only 0.533 g/s above the previously stated emissions. Furthermore, the emission rates for the HPGR grinding system and other sources will comply with the emission standard of 50 mg/m<sup>3</sup>.

**Table 1: Location, Stack ID, and Relevant Data for Additional CCCL Sources**

Plant System	Stack ID	PM Emission Rate	PM Emission Rate	UTME	UTMN	Elev	Stack Height	Stack Dia.	Stack Vel.	Stack Temp.
		g/s	mg/m <sup>3</sup>	m	m	m	m	m	m/s	K
Feed System Belt	6116B	0.038	14.33	316,653	1,987,170	26.5	2.2	0.45	15.55	355
Feed System Belt	6118B	0.05	14.33	316,652	1,987,183	11.8	2.2	0.51	15.92	355
HPGR Fabric Filter	6143C	0.931	39.206	316,712	1,987,178	6.1	64.6	1.75	9.201	375

#### 4.2 Model Results

Table 2 details the results obtained when the HPGR enhancements are included in the modeling exercise.

**Table 2: Modified CCC Plant**

Pollutant	Regulation	Averaging Period	Background	Standard	Model Results
			( $\mu\text{g}/\text{m}^3$ )	( $\mu\text{g}/\text{m}^3$ )	( $\mu\text{g}/\text{m}^3$ )
TSP/PM <sub>10</sub>	JAAQS	24-hr	60	150	120
		Annual	15	50	45
	Increment	24-hr		80	22.6
		Annual		21	0

The results revealed that the maximum predicted concentrations for the expansion and modernization project are within the 24-h and annual standards for particulate matter, but once the background concentrations are taken into consideration, the standards are exceeded. **This was the same situation that pertains even without the inclusion of the HPGR enhancements.** However, it must be stated that the **incremental impacts are all within the limits prescribed by the National Environment & Planning Agency (NEPA), and hence there is no significant impact being created by all the additional sources for particulate matter discharge (including the HPGR enhancements).**

It should be noted that according to the NEPA Air Quality Guideline Document, since there is no significant impact, the project should be granted the approval to proceed by NEPA.

#### 5.0 MITIGATION MEASURES

The findings of the dispersion model indicate that maximum predicted concentrations when added to the recommended background concentrations exceed the PM 24-hour and annual ambient air quality standards. It is recommended that CCCL implement the following measures in order to mitigate any negative impacts:

- Implement a programme that systematically inspects and maintains all dust collectors. All dust collectors should be routinely maintained as per manufacturer's specifications.
- Establish a facility-wide dust suppressant programme that especially targets the material transfer areas.
- Install at least one PM ambient air quality measuring device at a key receptor location in order to validate model predictions.

---//---